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Social-Class
Influences
upon
Learning

ALLISON DAVIS

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upon Learning

BY

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THE INGLIS LECTURESHIP

TO HONOR THE MEMORY OF ALEXANDER INGLIS, 1879-1924, HIS FRIENDS AND COLLEAGUES GAVE TO THE GRADUATE SCHOOL OF EDUCATION, HARVARD UNIVERSITY, A FUND FOR THE MAINTENANCE OF A LECTURESHIP IN SECONDARY EDUCATION. TO THE STUDY OF PROBLEMS IN THIS FIELD PROFESSOR INGLIS DEVOTED HIS PROFESSIONAL CAREER, LEAVING AS A PRECIOUS HERITAGE TO HIS CO-WORKERS THE EXAMPLE OF HIS INDUSTRY, INTELLECTUAL INTEGRITY, HUMAN SYMPATHY, AND SOCIAL VISION. IT IS THE PURPOSE OF THE LECTURESHIP TO PERPETUATE THE SPIRIT OF HIS LABORS AND CONTRIBUTE TO THE SOLUTION OF PROBLEMS IN THE FIELD OF HIS INTEREST. THE LECTURES ON THIS FOUNDATION ARE PUBLISHED ANNUALLY BY THE SCHOOL.

SOCIAL-CLASS INFLUENCES UPON
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SOCIAL-CLASS INFLUENCES UPON LEARNING

EDUCATION is an art which seeks to apply several sciences in the aid of a complex organic process which we call learning. Now, every effective learning-situation between a pupil and teacher is reciprocal. In order to help the child learn, the teacher himself must discover the reference-points from which the child starts. Specifically, the teacher must learn a good deal about the pupil's cultural environment and his cultural motivation, if the teacher is to guide the child's new learning effectively. This necessity for learning the basic culture of the pupil is especially urgent for teachers who work with children of the lower socio-economic groups.

In every so-called "lesson," the pupil always has something important to tell the teacher; he may tell her what he has already learned that either aids or obstructs the new learning which the teacher seeks to instigate. The slum pupil, to cite a case, cannot learn the teacher's culture well until his teacher learns enough about the slum culture to understand what the pupil's words and

learning-acts mean. To encourage new learning, the teacher must discover the obstacles inherent in the pupil's old learning. She will need, therefore, to learn the pupil's cultural beliefs, his cultural definitions of life-problems, the meaning of his words, and his culturally learned conceptions of the teacher herself, and of the school.

Just as soon as the teacher understands anything about the child or adolescent as a member of his family or play-group, as a learning organism in a particular cultural environment, the teacher begins to see the pupil's behavior in an entirely new light. Then for the first time, the "teaching" situation becomes a reality-situation, in which the teacher can plan her own efforts with reference to some known points in the pupil's behavior. Only then does she begin to discover what her words mean to him, what he has to unlearn, and what learning experiences are pleasant or painful to him.

This previous learning by the child or adolescent, most of which he acquires outside the school, is chiefly cultural. In its generic sense, culture includes all behavior which the human being exhibits in conformity with his family, his play-group, his school-group, his social class, his church, and all his other human groups. The

processes by which the individual learns his basic culture are subsumed under the concept of socialization. Socialization includes not only social learning, but also those processes which help form the human personality itself, including both its emotional and its intellectual aspects.

Our interest here will be to examine certain differences among social classes in the United States with respect to the basic socialization of the child. It is granted, of course, that all inhabitants of the United States learn certain behaviors in common. There are relatively few such common American cultural traits, however, in comparison with the great variety of cultural acts, beliefs, and values which have been differentiated by the various social strata in the United States.

My purpose here, then, is to describe, in quantitative terms and also in terms of learning-theory, the basic socialization of the human character and intellect, as this social learning is guided in middle-class culture and in lower-class (or slum) culture. I shall consider in turn: (1) the nature of social classes in this country; (2) the effect of social-class culture in differentiating the basic early training of children; (3) the cultural definition by each social class of what is pleasant and

desirable, and of what is unpleasant and dangerous; (4) the influence of the social-class environment in defining those types of mental problems which are regarded as important by children of each social class, and in teaching skills for solving such problems; and (5) the effects of social-class culture upon teachers and curricula.

Because the question of intellectual differences, existing among children of different social strata, is pivotal in our whole public-school system, much of our thought will be directed to the question of cultural influence upon mental problem-solving. In order to discuss such cultural differences in mental behavior, we must eventually consider the nature of mental problem-solving behavior itself, and of the so-called "intelligence tests."

SOCIAL CLASSES IN THE UNITED STATES

In spite of certain universal similarities (in moral sanctions, language, familial structure, dress, and technical adaptations) which appear in our society, the social conditions under which persons have access to fundamental biological and social goals are differentiated in many respects by a system of privilege. When this system is examined in detail, as it recently has been studied in New England, in the deep South, and in the Mid-

west by social anthropologists¹ who have lived in these communities for extended periods, it is found to be a system of socially ranked groups, with varying degrees of social movement existing among them. Each group consists of people who participate, or may participate, in intimate social relationships with each other, but who do not and may not associate freely with the groups which are socially defined as "above" and "below" them.

In our society, an individual is born into a family which is a member of such a socially ranked group. His family's social and sexual participation is largely limited to its own class group. His opportunities for social learning are limited by the pressure which he receives from groups above and below him to restrict his social participation, that is, to "keep him in his social place." The effect of such pressure is usually to prevent him from learning new habits, and thus from increasing his social and economic privileges. The nature of each social-class culture, that is, of the

¹ See W. Lloyd Warner and others, *Yankee City Series*, Vols. I-IV (New Haven, Conn.: Yale University Press, 1941-1947); Allison Davis, Burleigh B. Gardner, and Mary R. Gardner, *Deep South* (Chicago: University of Chicago Press, 1941); W. Lloyd Warner, Marchia Meeker, and Kenneth Eells, *The Measurement of Social Status* (Chicago: Science Research Associates, in preparation).

social learning of the class members, is ultimately determined by the kind of privileges (goal-responses) which the class is allowed to attain.

Social classes constitute only one of the systems of social rank which exist in American society. There are three of these broad systems of status, each of them tending to restrict the cultural, and therefore the learning, environment of the children in these strata. These three types of status-groups are: (1) *social classes*, (2) the *ethnic or foreign-born groups*, and (3) the *color-castes*.

These three types of social stratification differ with respect to the opportunity allowed an individual, living within the system, to move into (or associate with) a social rank other than that into which he was born. Color-castes are the most severely sanctioned forms of social stratification in America. Color-castes in the southern states allow no status movement at all out of one's birth group. On the other hand, our systems of ethnic groups and of social classes permit a certain amount of movement of people into other strata; that is, it is possible at present for a child born into a social class or ethnic group having low status, to move into a "higher" status and a "higher" cultural level by learning the necessary behavior and displaying the necessary symbols. Such

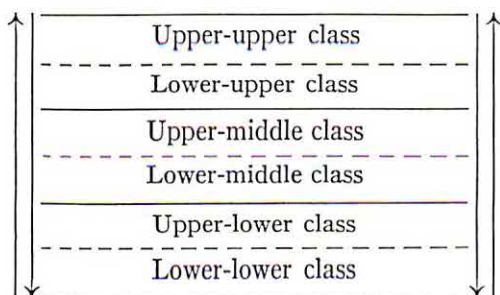
status-differentiations as these have the effect in varying degrees of defining and limiting the developmental environment of the child. If people of different cultures cannot associate freely, they cannot learn one another's special form of the American language, methods of child-rearing, manners, morals, and social and psychological goals.

Intensive field studies of intimate social participation among the inhabitants of small cities in New England, the deep South, and the Midwest have revealed several major levels of participation and culture. These social strata are developed and recognized by the inhabitants upon the basis of types of moral sanctions, language, manners, rituals, economic traits, and other differentiated symbols of rank. In studies of intimate social participation it has been found that distinctions of social-class position are always made upon a basis of possible social acceptance, as illustrated by the following quotations: "They don't fit in with our bunch." "We don't know her family." "I never saw her socially in my life." "They are ordinary people like us." "You feel at home with them." "They are the big shots, the society folks." "I wouldn't let my children play with that woman's; they are ignorant, common, dirty people."

Social cliques and families are the basic units of a social class. In his family and in his social clique, the child learns his class-behavior and goals. The social clique even more than the family is the essential learning-environment of children and adolescents who wish to "rise in the world" (attain a higher class position). A child's family can teach him only that behavior and motivation which it knows, that is, the culture of its own class; a social clique of higher status, however, provides the child or adult with the necessary models for imitation of a culture which is ranked as "higher" or "better."

There is no uniform number of social classes in American communities. The number and the complexity of social strata vary according to the age and economic complexity of the community, and according to the rural, urban, and ethnic composition of the population. In the small cities studied, the number of major classes identified has been three, each having two subclasses. The three major social classes are ranked upon the basis of their prestige-value in the thinking of the inhabitants of the communities; they may be termed upper, middle, and lower classes. Within each of these major social classes and cultures, there are also an upper and a lower status. Thus,

there exists a middle class, differentiated into an upper-middle and a lower-middle class. The accompanying diagram is meant to represent the six cultural strata in a small city. The arrows pointing upward and downward, in relation to the horizontal strata, indicate that the social-class system in this country still allows individuals to improve or to worsen their class-position.



Diagrammatic representation of the ranking of social classes in small American cities studied by Warner and Lunt in Yankee City; by Davis, Gardner, and Gardner in the deep South; and by Warner and Havighurst in the Midwest.

We find, then, that social classes operate essentially so as to maintain barriers against intimate social participation. To put it more graphically, most people from the “wrong side of the tracks” have no intimate association in any form — at work or elsewhere — with people from the “right side of the tracks.” People of the slums are barred

from intimate social participation with people from the gold coast, as well as with people from the "respectable" middle-class suburbia. Indeed, slum people also are stigmatized and avoided by the small "respectable" people (the lower-middle class), who sometimes may live in the same blocks. Finally this bottom group of our population is likewise avoided by "the poor, but honest and clean" families, as they speak of themselves — that is, the top part of the working class.

Now a child cannot learn his mores, social drives, and values — his basic culture — from books. He can learn a particular culture and a particular moral system only from those people who know this behavior, and who exhibit it in frequent relationships with the learner. If a child associates intimately with no one but slum adults and children, he will learn only slum culture. Thus the pivotal meaning of social classes to the student of behavior is that they limit and pattern the learning-environment; they structure the social "maze" in which the child learns his habits and meanings.

Each social class has developed its own differentiated and adaptive form of the basic American culture. In the slum, as elsewhere, the human group evolves solutions to the basic problems of

group life: the problems of subsistence, of unity of the kinship group, of sex-control, of child-rearing, of direction of and defense against aggression, of relation to the supernatural, of recreation, and so on. Because the slum individual usually is responding to a different physical, economic, and cultural reality from that in which the middle-class individual is trained, the slum individual's habits and values also must be different if they are to be realistic. The behavior which we regard as "delinquent" or "shiftless" or "unmotivated" in slum groups is usually a perfectly realistic, adaptive, and — in slum life — respectable response to reality.

By defining the people with whom an individual may have intimate social relationships, therefore, our social-class system narrows his learning and training environment. His social instigations and goals, his symbolic world and its evaluation are largely selected from the narrow culture of that class with which alone he can associate freely.

SOCIAL-CLASS DIFFERENCES IN THE EARLY SOCIALIZATION OF THE CHILD

Our knowledge of social-class training is now sufficient to enable us to say that no studies can

henceforth generalize about "the child." We shall always have to ask, "A child of what social class, in what cultural environment?" Very few of the statements which one may make concerning the physical growth, the socialization, or the motivation of slum children, for example, would hold for upper-middle-class children.

The child's social learning takes place chiefly in the environments of his family and its friends, and of his own play-group. All these groups, we now know, are restricted in the range of their social and cultural participation by social-class barriers. Thus the culture of both the child's family and his play-group become class-typed. This social-class patterning of the child's learning, as exerted through the family, extends from control of the types of food he eats and of the way he eats it to the kinds of sexual, aggressive, and educational training he receives.

To begin with, one discovers that the family's demands upon the infant itself differ significantly between the middle class and the lower class. In a recent study of child-rearing practices in fifty white middle-class families, fifty white lower-class families, fifty Negro middle-class families, and fifty Negro lower-class families, Dr. Robert J. Havighurst and I discovered:

1. That more lower-class than middle-class babies are breast fed only.

2. That more lower-class babies are fed at will.

3. That more lower-class (white) babies have the breast or bottle longer than twelve months.

4. That lower-class children are weaned later.

5. That bowel training is begun earlier (on the average) with middle-class children.

6. That bladder training is begun earlier (on the average) with middle-class children.

7. That middle-class children are expected to help at home earlier.

8. That middle-class children are expected to assume responsibility earlier.

9. That lower-class children stay up later, stay in the streets later, and go to the movies more often.

All of these differences among social classes, with regard to child-rearing, were statistically significant at the 5 per cent level.²

This study of 100 white and 100 Negro families in Chicago confirms previous exploratory obser-

² See Allison Davis and Robert J. Havighurst, "Social-Class and Color Differences in Child-Rearing," *American Sociological Review* (December 1946). Tables I-III are reproduced from this article.

TABLE I
 MEDIAN AGES IN MONTHS FOR VARIOUS ASPECTS OF
 FEEDING AND TOILET TRAINING

	White			Negro		
	Middle class No.	Median	Lower class No.	Middle class No.	Median	Lower class No.
Breast feeding finished	75	3.8	114	88	8.5	159
Bottle feeding finished	95	10.7	123	74	12.5	99
Sucking finished	99	10.5	147	104	12.0	177
Bowel training begun	99	7.5	158	105	5.5	172
Bowel training complete	91	18.4	152	95	13.4	160
Bladder training begun	93	11.2	156	102	9.2	124
Bladder training complete	81	24.6	139	76	18.0	143

TABLE III
MOTHERS' REPORTS ON STRICTNESS OF REGIME

	White		Negro	
	Middle class %	Lower class %	Middle class %	Lower class %
<i>Do children take nap in daytime?</i>				
Yes	89	52	86	63
No	9	46	12	21
Sometimes	2	2	2	16
Total number answering	46	50	50	48
<i>Age at which boys go to movie alone</i>				
5-7 years	17	35	35	70
Over 8	83	65	52	30
Doesn't approve of movies for child	0	0	13	0
Total number answering	23	40	23	40
<i>Age at which girls go to movie alone</i>				
5-7	14	45	0	5
Over 8	86	55	72	95
Doesn't approve of movies for child	0	0	28	30
Total number answering	28	42	32	37

Time boys in house at night

5-6 o'clock	59	33	31	2
7-8 o'clock	32	33	63	57
9-10 o'clock	5	26	0	41
At will	4	8	0	0
Children not allowed on street	0	0	6	0
Total number answering	22	39	32	44

Time girls in house at night

5-6 o'clock	68	33	35	8
7-8 o'clock	29	39	56	63
9-10 o'clock	3	23	0	26
At will	0	5	0	0
Children not allowed on street	0	0	9	3
Total number answering	31	39	34	38

vational studies.³ It seems clear, therefore, that, as compared with the rearing of middle-class children, the early training-environment of most lower-class children permits them fuller gratification of their organically based drives. The cultural training of the eating, eliminating, and exploring drives is applied much more gradually in the lower class, and relapses are treated far more leniently. In toilet training, which is the most difficult of these early cultural trainings, however, lower-class children succeed in learning their toilet habits by exactly the same median age as do the "early-pressed" middle-class children. The one exception to this rule is that of the bowel training of Negro children. Middle-class Negro children complete this training much earlier (thirteen months) than do lower-class Negro children (eighteen months), or than white children of either middle or lower class (eighteen months). (In many respects, we know, Negro middle class is a very conservative group.)

The findings concerning thumb-sucking likewise seem to support the theory that the middle-class child undergoes in his cultural training a more depriving attack upon his sources of organic and

³ See Allison Davis and John Dollard, *Children of Bondage* (Washington, D. C.: American Council of Education, 1940).

emotional support than does the lower-class child. Three times as many white middle-class children were reported to suck their thumbs as white lower-class children. Freudians would expect this higher incidence of thumb-sucking among middle-class children, in line with the theory that thumb-sucking is a response to strong interference with the hunger drive, and likewise of the pleasure drive in sucking. Yet Negro middle-class children, who were trained much more permissively than white middle-class children with respect to nursing and weaning, but much more rigorously than white middle-class children with respect to toilet habits, sucked their thumbs in almost the same proportion of cases as that reported for white middle class. We conclude, therefore, that thumb-sucking (like fingernail-biting, nose-picking, etc.) may be a response to frustration of many sorts, rather than to frustration in the feeding and sucking areas alone.

Our figures on genital self-stimulation seem to admit of the same interpretation. We know that the average middle-class parent is more watchful and punitive than the average lower-class parent in dealing with genital play. In spite of this supervision, three times as many white middle-class as white lower-class children were reported

to masturbate. Among Negroes, twice as many middle-class as lower-class children were reported as masturbating. Thus it appears that masturbation in children may not be primarily a response to a direct sexual drive, but rather a response to any or all of several kinds of frustration, each of which is more common in the rigorous training of middle-class children.

It seems true, then, that middle-class children are early taught to accept greater restraint in the direct use of their own sources of primary organic satisfaction. In seeking to train their children, middle-class parents demand relatively early and rapid achievement in the learning of cleanliness habits, sexual inhibitions, respect for property, and control of exploration. Except for those few mothers who have had liberal pediatric advice, middle-class women try to feed their infants on a rigid time-schedule, wean them early, vigorously attack young children's thumb-sucking and genital manipulations, punish them too early for aggressive behavior, close them in "pens" to prevent their marring property within the home, and subject them to a barrage of other demands for social habits which they would learn more effectively through the slower process of identification with their parents and older siblings.

Most of the difficulties which arise between the middle-class parent and child result from this constant, often subtle, pressure by the middle-class culture as it has been learned by the parents. The difficulties are intensified because most middle-class parents are not aware of the cultural pressure which they continually are exerting upon their children. Nor do they realize the great emotional cost to the infant and young child of accepting this severe social control. The young child is an organism which seeks its own physiologically based goals of gratification. The conflict between this unlearned organism and our social controls is a violent and often bruising experience when the training is applied before the child has learned the concept of social acceptance. To escape the trap of what seem to him arbitrary demands, the young child attempts every kind of resistance and cunning subterfuge. This effort springs from a normal, protective drive to preserve something of his own essential pleasures and of his power of self-direction.

Negativism in young children, like thumb-sucking and masturbation, is far more general in the middle class. The period of negativism begins with the first prolonged training, usually toilet training in middle class. That is, negativism,

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sullenness, discouragement about life accompany the child's first prolonged experience with a social taboo. This state is most dangerous to the child's development, when it results from too early and too severe demands upon the child, in his use of his own body. Thus middle-class parents, who have been taught by their own parents to strive for early and fast attainment as an absolute "good" in their part of society, very often sacrifice their children's happiness, their basic adequacy in facing the realities of later life, by training them too early and too severely for "achievement."

THE STRUCTURE OF REWARDS AND PUNISHMENTS IN THE MIDDLE AND LOWER CLASSES

Any attempt to trace the processes by which human beings in our society learn their social drives and social goals must face the problem of social-class differences in motivation. These differences occur in most of the basic areas of human psychology: in mental problem-solving, and in the motivational areas of hunger, sex, and aggression. The most urgent problem for the public schools is to learn the motivational structure of lower-class children and adolescents. About two thirds of our elementary school pupils have been trained in lower-class families and neighborhoods;

at least one third of our school population comes from the bottom group within the lower class, the slum culture.

The fate of our nation, industrially, politically, and in case of war, depends primarily upon the ability of the public schools to help large numbers of children from these slum and farm-tenant groups to learn the basic skills of our society. The schools have not learned how to do this. Our public schools for the lowest third of our population, the schools in slums, are almost a complete failure. The staffs of these schools generally are aware of their basic failure, and are demoralized. Little serious effort has been made by our teachers, colleges, and universities to investigate this major problem in public education. Our effort here will be directed primarily, therefore, toward examining the motivational structure as learned by the lower-class child from his family and other cultural groups.

To understand the socialization of slum children, one must first view the slum adult-world, and trace the motivational system which slum adults exhibit, as a group. What are the basic social drives of slum adults? To put this question more carefully, what experiences does the slum individual learn from his group to define as

“pleasant,” and what experiences does he learn to define as “painful” among the available experiences in his world?

This approach seems to be the quickest route to an understanding of the social motivation of any group. For we know from cultural anthropologists that the primary function of all human cultures is to teach the members of the group to regard certain experiences as pleasant and others as painful. That is to say, nearly all rewards and punishments, so-called, vary with regard to their particular form, intensity, and effect from culture to culture. We wish to know, therefore, (1) what experiences seem, to the slum group, to be most attainable, pleasant, and free from anxiety, and (2) what experiences seem most unpleasant, or seem most dangerous to the physical survival or social acceptance of the individual. Anyone who has tried to increase the motivation of slum individuals to work or study regularly knows that these are not simple questions.

One of the most basic differences in motivation between lower-class and middle-class people is their attitude toward eating. Owing to the greater security of their food supply, middle-class people eat more regularly. They therefore have learned to eat more sparingly at any given time, because

they know they are certain of their next meal. They have also developed a conscientious taboo upon "overeating"; they feel some guilt about getting fat and about what they call "raiding the icebox."

Slum people, however, have a very uncertain food supply. Their fear that they will not get enough to eat develops soon after the nursing period. Therefore, when the supply is plentiful, they eat as much as they can hold. They "pack food away" in themselves as a protection against the shortage which will develop before the next payday. They wish to get fat, for they regard fat as a protection against tuberculosis and physical weakness. Basically, the origin of this attitude toward eating is their deep fear of starvation.

Just as food-anxiety is far more urgent in lower-class than it is in middle-class society, so is the anxiety which is aroused by the danger of eviction from shelter, the danger of having too little sleep, the danger of being cold, and the danger of being in the dark. The middle-class individual is relatively certain that he will have enough coal or light; he buys his coal by the ton or the five tons; he burns five or ten electric lights. But the lower-class person's hold upon fire for heating is on a day-to-day or week-to-week basis. He buys coal

by the bushel, or by the five bushels, or by one-ton loads. Every week or so, therefore, he has to face the fear of being cold, and of having his children cold.

Similarly with light, his anxiety is far more chronic and realistic. His evenings are spent in a gray light; if more than one or two bulbs are used, and those are not of the lowest candle power, he will not be able to pay the light bill. Therefore, the fear of not having so basic a necessity as light — a fear which middle-class people escape after childhood — is recurrent with the slum individual. Walk into any real slum housing at night. People are crowded together in a dingy, twilight world. Their streets and alleys likewise are full of darkness, so that their chronic expectation of assault or rape is increased.

Just as slum people have painful, anxiety-ridden associations with food, so they have with shelter, sleep, and darkness. To this list must be added the fear of being inadequately clothed in winter. Most slum men, Negroes and whites, have no overcoat in normal times. Most sharecroppers' children have no woolen clothes in cold winter weather.

Now, when these same people get relatively large increases in income — as they did during

the late war — they spend their money “extravagantly,” as middle-class people judge their behavior. What is the meaning of this “splurging” for fur coats, for expensive clothes for children, for new furniture, and so forth? Part of the motivation is a drive for prestige-symbols, an attempt to acquire some of the signs of middle-class status. Equally important, certainly, is its function as a defense against anxiety, which is similar to the function of their Gargantuan eating after payday. When one has money, he buys things which he will be able to buy only once or twice in his lifetime — such things as expensive, respectable, or warm clothes, and a “decent” bed. He burns all the lights he wants; he eats great quantities of meat.

Thus, lower-class people look upon life as a recurrent series of depressions and peaks, with regard to the gratification of their basic needs. In their lives, it is all or nothing, or next-to-nothing. When they have fire, their homes are stifling hot, and everyone sits as close to the fire as possible. For they remember anxiously what it was to be cold; to be too cold to sit in the house; so cold that the whole family must go to bed to keep warm. Just as their deep anxiety about starvation leads them even in good times to glut themselves,

as middle-class people view their eating, so does the learned fear of deprivation drive lower-class people to get all they can of the other physical gratifications, "while the getting is good."

It would be more rational if they saved and budgeted their money, but human beings are not rational. They are what their culture teaches them to be. "Man is a reasoning, but not a reasonable animal." Lower-class people cannot learn middle-class foresight and moderation unless they can participate socially with middle-class people, whom they may then learn to imitate. So far, the public school is our only chance to teach lower-class people the middle-class motivational pattern. But the schools do not yet understand how to reward lower-class pupils. Furthermore, our economic system does not offer any prospect of a regular income to slum people; therefore, they lack the relative security which must underlie habits of saving, buying insurance, home buying, and so forth. As the average slum worker says, "Why should I try to save? The little bit I could put aside will be gone six months after the next depression starts."

Turning now to those experiences which are defined as painful chiefly by the social, as contrasted to the physical, environment, we find that

the socially aroused anxieties are still more numerous. The middle-class view that slum people have no sense of respectability, feel no pressure for social conformity, is simply ignorance of the facts. Lower-class culture includes a vast number of social taboos, and therefore stimulates a great number of social anxieties. First — to return to the so-called “physical” area of food, shelter, heat, and so on — slum culture has its own “decent” or “respectable” standards for food and housing. Lower-class people learn their own group’s cultural standard of “enough to eat,” or “a good house,” or “good furniture.” It is probably only when the cultural goals for subsistence (as “subsistence” is defined by slum culture) are threatened, therefore, that the person experiences marked anxiety. Lower-class people consider the same house or job as “good” which middle-class people regard as humiliating. The same standard of living that raises the anxiety of middle-class people will greatly allay the anxiety of slum people in our present social system.

The socially defined dangers of slum life originate in the threat of disapproval, ridicule, or rejection of the individual by his family, play-group, gang, church, club, and so on. All these lower-class groups make cultural demands of the

child and adolescent, just as do the middle-class family, play-group, and so on. But the demands are generally different than those of the middle-class group. In other words, the lower-class individual is taught by his culture to be anxious about different social dangers. Whereas the middle-class child learns a socially adaptive fear of receiving poor grades in school, of being aggressive toward the teacher, of fighting, of cursing, and of having early sex relations, the slum child learns to fear quite different social acts. His gang teaches him to fear being taken in by the teacher, of being a softie with her. To study homework seriously is literally a disgrace. Instead of boasting of good marks in school, one conceals them, if he ever receives any. The lower-class individual fears *not* to be thought a street-fighter; it is a suspicious and dangerous social trait. He fears *not to curse*. If he cannot claim early sex relations, his virility is seriously questioned.

Thus society raises many anxieties in slum people also, but with regard to the attainment of what seem to middle-class people to be strange goals. For those who must live in a slum community, however, these goals are realistic and adaptive.

There is space here to consider only two areas of experience which are patterned by slum culture as chiefly pleasant. I do not believe that there is any evidence that these two areas, sex relations and physical aggression, are more basic physiologically than the food area or the heat-cold area of experience. But psychologically, the areas of sex and aggression are the most formative of middle-class personality, because middle-class culture teaches the individual, from childhood, that sexual responses and physical aggression, more than any other behaviors, must be either inhibited or very carefully controlled. The result of this middle-class training of children to fear their own sex impulses and their own rage is usually to make sex and aggression the chief problem-areas of the middle-class personality. The manifestations of these two types of problems are usually highly disguised, but the source is very simple. Sex and aggression (including stealing) become, if not "properly" controlled and guided according to the middle-class cultural standard, the most dangerous forms of behavior to a person of middle-class status. The middle-class child is taught this lesson by precept and example. For a large proportion of middle-class people, therefore, sex has been stamped as "dirty,"

or "unimportant," and filled with anxiety, because in both their childhood and adolescence their own sexual responses were made to appear too dangerous socially by their parents and teachers.

In slum groups, on the other hand, both children and adults are permitted far more gratification of their sexual responses and of their rage responses. This "permissiveness," as it seems to middle-class people, extends into most of the basic areas of adolescent behavior in the lower class.

Before comparing middle-class and lower-class adolescents, however, a warning must be injected here. We recall that the long, indulgent nursing period of lower-class infants does not prevent their developing marked fear of starvation in later childhood and adulthood. This fact means that new situations, if strongly organized physically or socially, make new behavior. This is a cardinal principle of the new integrated science of social psychology. Basic learning can and does appear at any age level, provided that society or the physical environment changes the organization of its basic rewards and punishments for the individual.

Secondly, we should not be so naive as to think that lower-class life is a happy hunting ground given over to complete impulse expression. Slum

people must accept in some form all of the basic sexual controls on incest, homosexuality, and marital irresponsibility. In fact, there is evidence to indicate that they are more observant of the taboos upon incest and homosexuality than is the upper class. Furthermore, the same pattern which holds in their food-intake — of deprivation, relieved by peaks of great indulgence — is typical of lower-class sexual life. Lack of housing, lack of beds, frequent separations of mates and lovers, the hard daily work of mothers with six to fourteen children, the itinerant life of the men, all make sexual life less regular, secure, and routine than in middle class. In the slum, one certainly does not have a sexual partner for as many days each month as do middle-class married people, but one gets and gives more satisfaction, over longer periods, when he does have a sexual partner. With this reservation in mind, one may proceed to examine adolescent behavior in the two classes.

The aggressive behavior of adolescents is a crucial case in point. In the middle class, aggression is clothed in the conventional forms of initiative, or ambition, or even of progressiveness, but in the lower class it more often appears unabashed as physical attack, or as threats of and encourage-

ment for physical attack. In general, middle-class aggression is taught to adolescents in the form of social and economic skills which will enable them to compete effectively at that level. The lower classes not uncommonly teach their children and adolescents to strike out with fist or knife and to be certain to hit first. Both girls and boys at adolescence may curse their father to his face or even attack him with fists, sticks, or axes in free-for-all family encounters. Husbands and wives sometimes stage pitched battles in the home; wives have their husbands arrested; and husbands try to break in or burn down their own homes when locked out. Such fights with fists or weapons, and the whipping of wives, occur sooner or later in most lower-class families. They may not appear today, nor tomorrow, but they will appear if the observer remains long enough.

The important consideration with regard to physical aggression in lower-class adolescents is, therefore, that it is learned as an approved and socially rewarded form of behavior in their culture. An interviewer of ours recently observed two nursery-school boys from lower-class families; they were boasting about the length of their fathers' clasp knives! The parents themselves have taught their children to fight not only chil-

dren of either sex but also adults who "make trouble" for them. If the child or adolescent cannot whip a grown opponent, the mother or father will join the fight. In such lower-class groups, an adolescent boy who does not try to be a good fighter will not receive the approval of the father, nor will he be acceptable to any play-group or gang. The result of these cultural sanctions is that he learns to fight and to admire fighters. The conception that aggression and hostility are neurotic or maladaptive symptoms of a chronically frustrated adolescent is an ethnocentric view of middle-class psychiatrists. In lower-class families, physical aggression is as much a normal, socially approved and socially inculcated type of behavior as it is in frontier communities.

There are many forms of aggression, of course, which are disapproved by lower-class as well as by middle-class adolescents. These include, among others, attack by magic or poison, rape, and cutting a woman in the face. Yet all of these forms of aggression are fairly common in some lower-class areas. Stealing is another form of aggression which lower-class parents verbally forbid, but which many of them in fact allow — so long as their child does not steal from his family or its close friends. The example of the adoles-

cent's play-group and of his own kin, however, is the crucial determinant of his behavior. Even where the efforts of the parent to instill middle-class mores in the child are more than halfhearted, the power of the street culture in which the child and adolescent are trained overwhelms the parental verbal instruction. The rewards of gang social prestige, of freedom of movement, and of property-gain all seem to be on the side of the street culture.

Like physical aggression, sexual relationships and motivation are more direct and uninhibited in lower-class adolescents. The most striking departure from the usual middle-class motivation is that, in much lower-class life, sexual drives and behavior in children are not regarded as inherently taboo and dangerous.

There are many parents in low-status culture, of course, who taboo these behaviors for their girls. Mothers try to prevent daughters from having children before they are married, but the example of the girl's own family is often to the contrary. At an early age the child learns of common-law marriages and extramarital relationships by men and women in his own family. He sees his father disappear to live with other women, or he sees other men visit his mother or married

sisters. Although none of his siblings may be illegitimate, the chances are very high that sooner or later his father and mother will accuse each other of having illegitimate children, or that at least one of his brothers or sisters will have a child outside of marriage. His play-group, girls and boys, discuss sexual relations frankly at the age of eleven or twelve, and he gains status with them by beginning intercourse early.

With sex, as with aggression, therefore, the social instigations and reinforcements of adolescents who live in these different cultures are opposites. The middle-class adolescent finds the roads to sex and aggression blocked by painful and intimidating experiences; the lower-class adolescent is frequently rewarded, both socially and organically, for these same behaviors. The degree of anxiety, guilt, or frustration attached to the behaviors, therefore, is entirely different in the two cases. One might go so far as to say that, in the case of middle-class adolescents, such anxiety and guilt, with regard to physical aggression and sexual intercourse, are proof of their normal socialization in their culture. In lower-class adolescents in certain environments, they are evidence of revolt against their own class culture, and therefore of incipient personality difficulties.

SOCIAL-CLASS INFLUENCE UPON MENTAL
PROBLEM-SOLVING

Just as the culture of a particular social-class group influences the emotional system of the human individual reared in that group, so does that culture likewise guide his mental activities. An intensive study is being made at the University of Chicago of the social-class cultural influence upon the responses of pupils to intelligence tests. An attempt is being made, also, to construct a new kind of test of mental activities.

These new tests will seek to measure a wider range of mental activities than do the present tests of so-called mental ability or mental maturity. Unlike the present group tests, the new tests will not be limited to prediction of simply those activities which are essential to success in learning the present school curricula. The present standard tests assume a virtually static curriculum; indeed, a static culture. They measure, it seems clear, chiefly those mental activities which are emphasized in the present narrow range of school problems.

In a dynamic society, however, the public school must aim to develop many different kinds of mental activities in pupils; to prepare children

to deal with a much wider range of problems than those touched upon by the usual academic process; to encourage many kinds of mental talent and skill. Their authors admit that the present tests of intelligence attempt only to predict degree of success in present school curricula. By thus narrowly limiting their criterion of intelligence, the present tests fail to tap a great many kinds of mental activity. This narrow scope of the tests penalizes most heavily the pupils of the lower socio-economic groups, because these groups have the least training and motivation to solve academic problems.

To find the nature of these social-class differences in test-responses, I planned a research to cover five years.⁴ The project includes (1) an item-analysis of the responses of two socio-economic groups of pupils to ten groups tests of intelligence; (2) an exploratory study of problem-solving activities in two socio-economic groups; (3) an experimental study of the effect of prac-

⁴ Robert J. Havighurst, Ralph W. Tyler, W. Lloyd Warner, Virgil E. Herrick, and Ernest A. Haggard have helped direct this research. Kenneth Eells, Walter I. Murray, David R. Stone, Robert Hess, Charles Hewitt, Carolyn Surratt, and Daniel Bergman have worked on major aspects of the study. Karl J. Holzinger, Lee J. Cronbach, Chester W. Harris, William M. Shanner, and Frances Swineford have advised us concerning statistical problems.

tice, motivation, item-content, and item-symbols upon the paper-and-pencil responses of two socio-economic groups; (4) experimental studies of the learning of laboratory problems by two socio-economic groups; and (5) the construction of new individual and group tests of general problem-solving behavior.

The first step in this research was to measure the relative success attained by different socio-economic groups of pupils on the specific questions (items) in ten of the most widely used group tests of general intelligence. This part of the research enables us to identify those test questions which prove relatively easy or difficult for pupils of each socio-economic stratum in the population. For this purpose, in a Midwestern city of about 115,000, all children of ages nine, ten, thirteen, and fourteen were tested.⁵ To define the socio-economic status of each pupil's family, we have used a quantitative index recently developed and validated by Professor W. Lloyd Warner and Dr. Kenneth Eells.⁶ This Index of Status Characteristics correlates highly with the social-class position of families in Midwestern cities.

⁵ The testing was carried out in January, 1946. Actually, all children born in 1931, 1932, 1935, and 1936 were tested.

⁶ See Warner, Meeker, and Eells, *The Measurement of Social Status*.

The results of our item-analysis of ten standard, paper-and-pencil group tests of intelligence will be published later in a monograph. For our purpose here, it is necessary only to report the following results: We discovered that a large proportion of the items in each of these tests "discriminated between" children from the highest and lowest socio-economic levels. In several tests, the proportion of such items was overwhelming; for instance, in the very popular Otis Beta test, seventy-three of the eighty items on the test showed statistically highly significant differences between the performances of children from the two social levels.

The proportion of items in each test showing highly significant discrimination⁷ between socio-economic groups is given in Table IV.⁸ It will be

⁷ On these items, the class-differences in performance are so large that there is only one chance in a hundred that such differences would occur merely by chance.

⁸ The item-analysis was under the direction of Kenneth Eells. These data are based only on items which were reached and attempted by at least 95 per cent of the pupils in both social groups, and which were sufficiently difficult so that at least 10 per cent of either group failed the item. They include 460 out of the 967 items in these eight tests. Of the items excluded, it is uncertain how great the class-differential would be if the items were tried out on a group of pupils for whom they were of moderate difficulty, and under time-conditions enabling all pupils to complete all items.

TABLE IV

ITEM-DISCRIMINATION BETWEEN SOCIO-ECONOMIC GROUPS

Test	Number of Pupils		Proportion of Items Showing S.E. Differential
	High S.E. Group	Low S.E. Group	
<i>Tests given to nine- and ten- year-old pupils:</i>			
Henmon-Nelson	226	322	93%
Otis Alpha (non-verbal)	223	316	46%
Otis Alpha (verbal)	223	326	70%
Kuhlmann-Anderson (Grade III)	225	327	56%
Kuhlmann-Anderson (Grade VI)	225	321	85%
<i>Tests given to thirteen- and fourteen-year-old pupils:</i>			
Terman-McNemar	233	361	100%
Otis Beta	235	364	91%
California Mental Maturity *	235	352	69%
Thurstone Spatial	235	352	84%
Thurstone Reasoning	232	358	100%

* The figures for the California Mental Maturity test are based on only four of the six subtests. Two of the subtests were omitted because the test was too long to give in full in the time available.

seen that on only one test did less than half of the items show significant discrimination between the two socio-economic groups, and that on four of the tests, more than 90 per cent of the items showed such discrimination. Moreover, the proportion of items discriminating between socio-economic groups is probably considerably higher in the Otis Alpha tests and in the Kuhlmann-Anderson (Grade III) than our sample reveals. These tests were standardized for grades (and therefore for age-groups) which are lower than

the mean grade-placement and mean age of our sample of testees. We should expect, therefore, that many of the items would be too easy for our sample; such items would not allow the higher socio-economic group to demonstrate its superiority over the lower in this type of problem.

The above figures indicate the proportion of items which showed a difference large enough to be significant, between the responses of the two socio-economic groups, but they do not show the actual amount of discrimination between the two groups. In order to study the actual amount of discrimination, the per cent of pupils in each socio-economic group answering the item correctly was converted to an index based on the normal curve.⁹ The socio-economic discrimination of the item was then computed in terms of

⁹ This analysis has been carried out by Kenneth Eells. For the statistically minded reader, it may be explained that this index was the one suggested by Frederick B. Davis in his recent monograph on item-analysis. It assumes a normal distribution for the trait underlying the test item. A standard-score scale is established, with a mean of 50 and a standard-deviation of 21.066. The 50 per cent point on the per cent scale is set equal to the mean of the standard-curve. See Davis, *Item-Analysis Data* (pamphlet; Graduate School of Education, Harvard University, 1946), pp. 7, 8, 38.

These findings have also been reported in Allison Davis and Robert J. Havighurst, "The Measurement of Mental Systems," *The Scientific Monthly*, Vol. LXVI, no. 4, pp. 301-316.

this index. The average amount of socio-economic difference found in this study is given in Table V.

The figures in Table V show that the actual amount of difference between the two socio-economic

TABLE V
AVERAGE INDEX-DIFFERENCE BETWEEN SOCIO-ECONOMIC GROUPS

<i>Test</i>	<i>Average Difference between Index for High S.E. Pupils and Index for Low S.E. Pupils</i>
<i>Tests given to nine- and ten- year-old pupils:</i>	
Henmon-Nelson	14.1
Kuhlmann-Anderson	10.3
Otis Alpha (verbal)	6.9
Otis Alpha (non-verbal)	5.9
<i>Tests given to thirteen- and fourteen-year-old pupils:</i>	
Terman-McNemar	16.4
Thurstone Reasoning	15.2
Otis Beta	14.1
California Mental Maturity	9.9
Thurstone Spatial	9.8

nomic groups was much greater on certain tests than on other tests. In general, the tests for the older pupils showed larger differences, although the California Mental Maturity and the Thurstone Spatial tests indicated differences smaller than those found for the younger pupils by the Henmon-Nelson and Terman-McNemar tests. Since there is such wide variation in the amount of difference between the high and low socio-

economic groups, depending upon what test is used, it is apparent that at least part of the difference must be due to the nature of the material in the tests themselves.

The wide variation in the amount of socio-economic difference found among items may be illustrated by citing two individual items. In the first case, 78 per cent of the pupils in the high socio-economic group answered the item correctly, but only 28 per cent of the pupils in the lower group did so — a difference of 46 percentage points. In the second case, the percentage answering the item correctly was practically identical for both socio-economic groups, so that there was no statistically significant difference. The content of these two items suggests the reason for the great variation in their socio-economic differential. The first item requires the pupil to be familiar with the term "sonata" — a word which will clearly be heard more often in a home in the high socio-economic brackets than in a family from the low socio-economic group. The second item, on the contrary, requires the pupil to apply the concept of a "cutting tool" so as to distinguish between this type and several other types of implements. Both the tools and the other implements are common to all socio-economic groups.

The first major part of our research identified, therefore, those specific test-questions which have proved relatively most difficult for pupils of the lowest socio-economic group. In doing so, it demonstrated that the standards used for selecting items in present tests have resulted in a very high degree of discrimination among socio-economic groups.

THE RANGE OF MENTAL PROBLEMS

The crux of our problem, however, was to discover *why* the standard test-items proved far more difficult for pupils of the lowest socio-economic group. Before considering our experimental evidence on this point, we must explain our hypotheses as to (1) the nature of mental behavior, and (2) the relationship between cultural learning and problem-solving.

If the present intelligence tests actually measure mental behavior in American society, their use should enable one to define equal units of this behavior in any two people. In fact, the greatest service of any measure is that it makes possible accurate comparisons between events which are separated in time, or space, or in both. Measures differ with respect to the range of events they can compare. For any given measure, the class of

events which it is capable of measuring may be very wide and complex, or very narrow and simple, or lie somewhere between these two extreme classes.

The wider the class of events for which a measure is a valid measure, however, the more useful the measure. To compare the mental behavior of different individuals, for instance, it would be more useful to have a measure which applied to all individuals in the United States than to have a measure which was useful simply within one segment or stratum of the population. If intelligence tests are to be used, for example, in public (free) school systems in a democracy, it is absolutely essential that such tests should be good measures of mental behavior in all large ethnic, racial, and socio-economic groups. In most of our schools, several different cultural groups attend the same classes. To begin with, then, the maker of an intelligence test has to set himself the task of devising a measure which is applicable to a wide range of socio-economic or cultural groups; for example, to all urban socio-economic groups, or to all rural socio-economic groups in the United States.

Fundamentally, the cultural bias of the standard tests of intelligence consists in their having

fixed upon only those types of mental behaviors in which the higher and middle socio-economic groups are superior. In those particular areas of behavior, the tests might conceivably be adequate measures of mental differences among individual children within the more privileged socio-economic groups. But they do not measure the comparative over-all mental behavior of the higher and lower socio-economic groups, because they do not use problems which are equally familiar and motivating to all such groups.

It is very likely, moreover, that the present tests do not measure adequately the mental behavior of the children in the higher socio-economic groups, either. By choosing a limited range of mental problems, notably scholastic problems, the present tests very likely have biased our mental ratings of even the middle-class child, when measured in relation to other children from his own socio-economic group.

To be just, it must be recognized that the basic problems involved in constructing tests of general mental behavior, as distinguished from school achievement, are extremely difficult. When, in addition, one seeks to construct tests which measure the comparative mental behaviors of children from various socio-economic strata, the task be-

comes far more complicated. The failure of the test-makers to solve this problem has been the result of the great complexity of the total system of behavior which they are trying to measure, rather than of any lack of sincere effort on their part.

When one reviews the vast literature dealing with intelligence, he is confronted with literally a hundred different concepts of intelligence or of mental ability. This confusion has arisen from the generally accepted belief that intelligence is an entity, or that it is a number of discrete entities. Usually it is thought of as a "substance," in the Aristotelian sense. The effort then is made to state the qualities of this entity; for instance, that it is characterized by "the perception of relationship," or by "the ability to organize experience," or by "facility in generalization," and so on.

From the theory that intelligence is an entity have proceeded two kinds of error: First, much hopeless argument and confusion have arisen from the effort to state which of the qualities of this supposed entity are the most important. Secondly, after the characteristics have been described, there has always arisen the implication that "something" remains behind these qualities,

namely, the entity or substance itself. In this fashion, one is brought back to the starting point: the belief that intelligence is an essence, a "something" which is really not capable of treatment as a phenomenal system of behavior.

We do not believe that such a concept of intelligence is profitable or expedient for scientific research. It seems more expedient to conceive of mental behavior as consisting of behavioral phenomena, of acts which may be observed, or inferred to exist from observation. It follows, then, that mental behavior is a natural system, occurring within the individual organism. It is natural in the sense that it is phenomenal and organic, like the system of vision, or of emotional behavior. It is a system in the sense that all "mental" acts are interdependent and interconnected. Mental behavior, that is, has no discrete characteristics or parts; all the acts are related to, and function to maintain or to modify, other acts in the system.¹⁰

At the biochemical level, the total mental sys-

¹⁰ For a method of classifying behavioral systems, we are indebted to A. R. Radcliffe-Brown's unpublished work, "The Nature of a Science of Society." These lectures were given in 1937, when Dr. Radcliffe-Brown was professor of anthropology in the University of Chicago. Copies are on file in that department. Dr. Radcliffe-Brown is now professor emeritus of anthropology, Oxford University, England.

tem of a human being must be presumed to be an organization primarily of activities of the brain, the central nervous system, and certain of the endocrine glands; it extends secondarily into the autonomic nervous system. Concerning this biochemical level, where mental behavior originates, we know very little.

At the level of gross, or molar behavior, however, where observation of sequences of acts, and records of conscious thought are the pertinent phenomena, we may study mental behavior in terms both of learning-sequences and of measurement.

Mental behavior, in this molar system, is presumed to result both from genetic phenomena and also from developmental phenomena. The developmental aspects of mental behavior vary according to the amount and intensity of the mobilization (functioning) of the genetic and other organic processes; this mobilization is stimulated and guided by both the natural and cultural environments. Most, but probably not all, developmental mental phenomena are learned.

The basic processes of this system are: (1) processes which maintain stability and structure in the relationships between mental acts; and (2) processes which lead to change (development

or deterioration) between those relationships. Just as an atomic system has electrons in continual motion, and yet in a structured, stable relationship with each other, so a system of mental acts is both dynamic and structured.

Just as the atom is a system only in the sense that the scientist has conceptually demarcated it from the molecule or the electron, which also are natural systems, so human "mental" behavior is a system, distinguished conceptually from the systems of emotional behavior or of visual behavior. All three of these systems, visual, emotional, and mental, and many others, are integrated into one system, the human organism. But for the purposes of science, it is expedient and permissible to distinguish conceptually the system of mental acts, so as to study this system both in itself and in its relations to other conceptually defined systems within the human organism.

Further, just as the chemical element may be conceptually defined as containing a hierarchy of systems (molecules, atoms, and electrons), so the total system of mental behavior may be conceptually viewed as containing many smaller systems of mental acts, such as acts of foresight, of analogy, of classification, of creative organization, and so on. Each of these subsystems of mental acts is

an interconnected structure in itself. For the purpose of study, it may be viewed as a separate system, whose environment is the rest of the total mental system and the organism. Each mental subsystem must be studied also in terms of its relationships with other systems of mental acts, because it is these relationships of interconnection which constitute the structure of the total system. In time, but not in the near future, it may be possible to discover the hierarchical order of various mental systems.

Owing to our very limited knowledge of mental behavior and of the principles of human learning, we must be content to choose the simpler systems of mental acts as the present subjects of measurement. Mental behavior, as a total system in the organism, is a vast and intricate class of systems. Its range extends from (1) the systems of mental acts which direct and accommodate the personality and the emotional system, or (2) the mental acts which are creative and imaginative, or (3) the mental acts which make an individual successful in outwitting others or in organizing groups, all the way to (4) those less complex systems of mental acts, tested by present intelligence-test questions, which require the rhyming of words, or the rearranging of words to form a certain sen-

tence, or the rearranging of letters to form a certain word.

Mental behavior, therefore, is a highly complex system. It is, in fact, a class of systems. Each of these mental systems is a dynamic configuration of interconnected, interacting phenomena. The total class of such systems includes all the learning processes of the organism.

The chief characteristic of these mental systems is that they develop new behavior, which is then integrated or organized into the system, so as both to modify and to stabilize the behavior of the organism. The concept of learning behavior is a more useful concept for exploring this process than is the concept of mental behavior.

To measure the level of intelligence, therefore, is far more difficult than most test-makers have admitted. Yet measurement, as a type of research technique, is probably one of the best approaches to the eventual understanding of human learning. In exploiting this technique, the testers have added to our knowledge of systems of learned behavior and of learning. Their knowledge, as yet, is largely rule of thumb, however. It suffers from the bias typical of measurement in its early stages in most fields. Intelligence testing now is about at the same stage as that reached by early measures

of electric current. Physicists and chemists tried for a long time to measure these processes, without understanding at all their origin or laws; in the process of exploring measurement, they began, in a more or less rule-of-thumb fashion, to form hypotheses concerning electrical systems. Mental testers have followed much the same course as the earlier physical scientists.

Mental testing is the beginning of an applied science, we believe.¹¹ Through its use we hope, like the earlier scientists who sought to measure heat, to measure behavior and to validate our measure by correlating its results with those of some other index of this behavior. In this procedure, the test-makers have followed the exploratory, empirical method of other early applied scientists. They have believed that, as they sought to get some comparative measure of learned behavior in different human organisms, they would discover its organization also.

We cannot say yet whether this basic assump-

¹¹ For exploratory studies of learning and for the study of dynamic relationships between acts of learning, other techniques prove more useful than the present tests. Piaget-type questioning of pupils, exploratory interviewing of the learner, and observation of the learner in real-life situations are all more revealing for these purposes than are responses to the present group tests.

tion will prove expedient. We have no doubt, however, that the present tests furnish an index of the functioning of only a few small and simple types of mental systems. We grant that, like any scientist, the tester is justified in having selected these particular systems, and having considered them apart from the total learning system, in order to begin to study them. But the tester certainly is not justified in claiming, nor implying, that these few simple systems furnish a basis for measuring the more complex systems of learned behavior, nor the whole range of learned systems.

First, he must recall that learned behavior consists of very numerous and complex systems of acts, functioning as a total, interconnected system. Second, he must ask himself which of these systems, or its relationships, he is measuring. Does his test measure one such system, or several, or all? If it measures several systems, what are the relationships among them? If it measures one system, how is this one distinguished from the others? If his test measures all systems of learned (mental) behavior, what principles account for the correlation, or lack of correlation, among the systems in this conceptually delimited field?

Unfortunately for psychology, test-makers have

not asked themselves these questions. Actually, most test-makers have sought to measure only those systems of learned behavior which may be subsumed under the concept of problem-solving. The term "problem-solving" here is used to mean "systems of learning, and/or learned acts, whose goal is set for the learner by another individual or group of individuals." Examples of this concept are: "How can you unlock this door?" or "How can you make a word of these letters?" or "How much money am I showing you?" or "How should you act if you want Mother to think that you are a good boy?"

Problem-solving may be an expedient choice for beginning the measurement of learned systems of behavior. (Scientists have to select their hypotheses upon the basis of their apparent expediency, but only rigorous analysis of probability will prove whether these choices have been really expedient.) In seeking to measure problem-solving systems, however, the testers have made very serious errors in analysis.

The first such error has consisted of the failure of test-makers to realize that problem-solving is a *system of acts*, and not merely one act. For instance, the testers have assumed, in giving group tests, that there is only one important act in

problem-solving: namely, the "answer." In solving an analogy, such as any of those found in group tests, however, the pupil actually exhibits a system of many learned acts. We know, through interviewing pupils, that the solution of analogies involves a system of acts, including knowledge of the vocabulary used in the question, skills in reading, skills in perceiving similarity, specific cultural experiences, and so on. The pupil has not learned, therefore, to solve analogies until he has learned all the acts and skills, and also learned to relate these to each other, so as to achieve a certain configuration of the phenomena.

Thus, a pupil often exhibits knowledge of part of the system of drawing a correct analogy; he performs part, or nearly all, of the problem correctly, but he cannot organize the whole system. Therefore, some pupils who "fail" a test question are actually nearly ready to integrate the whole system of acts, whereas others exhibit only a few, or no, acts of this system of learning. When, now, all the "failures" are given some training, the first group are shown to have been at a higher level on the original testing, because they now solve the problem, whereas the second group still fail to do so. But the present group tests make no distinction between these two groups of pupils,

because the testers have not taken into account the fact that problem-solving is always a system of acts.¹²

ELIMINATING CULTURAL BIAS FROM MENTAL TESTS

Although little can be done to remedy this error in group tests, owing to the requirements of rapid scoring, there are more serious errors, which are remediable, and which also result from the test-makers' failure to understand that problem-solving is an interfunctioning system of acts. These are the errors which arise in connection with those cultural acts which are always and necessarily integrated into the total system of problem-solving acts. All human problem-solving, as anthropologists have indicated, includes cultural learning. Culture, we recall, may be defined as *all behavior learned by the individual in conformity with a group*. Culture "teaches" the individual not only to recognize certain phenomena, but also certain symbols of phenomena, and the logical relationships among them. Culture also sets the

¹² The practice of simply marking the answer also fails where there are two or more correct answers (as in the many ambiguous questions on tests), and likewise in the opportunity available for guessing the answer.

goals of human problems, and teaches the inferences (logic) which people in a particular culture regard as justifiable.

Now to return to the solution of analogies, which, we recall, is a system of data, skills, and their relationships. Many of the acts, symbols, and skills which are required for the integrating of a solution of analogies must be learned, in part or in whole, from other groups of people: the family, the play-group, the school. That which the individual will learn from these groups will differ according to the culture of the group. In our society, this cultural difference is greatest between socio-economic strata. This socio-economic cultural difference will therefore differentiate between the kinds of phenomena, and skills, which groups of pupils have learned in respect to certain types of problems, and which they have available for integration into a system of acts leading to the final solution of a particular problem. These cultural phenomena in problem-solving are the chief subject of the research upon intelligence tests which I am now conducting.

But are we not getting outside of the system of mental behavior? How may culture be involved in intelligence? Have we not said that learned or

mental acts constitute a system *within the organism*? How then may the culture of a socio-economic group interact with a mental system?

We observe first that culture consists of the acts (symbols, skills, inferences, and so forth) shared by groups of people. In the interaction between the group and the individual, these acts are accompanied by certain social and physical sanctions of the group; these sanctions lead to pleasant or unpleasant conditions within the individual organism. As a result, the acts are "learned" by the individual; that is, they are repeated and integrated into a system of his own behavior. *How* they are learned is not quite clear to psychologists. We observe empirically, however, that the individual's behavior changes so as to exhibit the culturally shared act. In short, the individual learns to think as his group defines "thinking."

Culture itself, moreover, also constitutes a natural system of phenomena. This system consists of acts (of individuals) which are of the same class as acts of other individuals, and which are interconnected with these acts by learning. Therefore, one may conceptually isolate the cultural system of a socio-economic group for the purpose of studying it.



Similarly, one may conceptually distinguish another natural system, consisting of cultural problem-solving activities, from all other cultural systems of activities. These cultural problem-solving activities form a natural system, because these activities exist at the level of phenomena; they may be observed. Cultural problem-solving activities, furthermore, constitute a system in that, although existing in many different individuals, they are interconnected by learning and by social interaction between the individuals.

Now to apply this level of analysis to our example of a standard-test question, namely, the analogy. We recall that the solving of analogies consists of a system of acts, skills, and their relationships. Now, the crucial question about any natural system, say the atom, is "what organizes its elements, relates them, maintains its structure?" In the case of learning-problems, such as analogies (or opposites, or classification, or vocabulary), the organizing acts are cultural acts.

These cultural acts, then, are learned by the individual through interaction with other individuals who constitute the learning "field," or "environment," or "stimulus-pattern." Once brought into the system of the individual's problem-solving activities, these culturally learned acts influ-

ence or interact with all the other acts and skills in the system. Therefore, no problem in a mental test may be considered to measure mental "ability" apart from cultural learning.

The solving of every problem constitutes a system of acts, in which those acts learned through cultural training are interconnected with acts of genetic control and acts of the emotional system. The cultural acts, however, determine the goal of a learning-system's operation; they modify and reorganize the other systems of acts involved in learning so as to make the total system operate toward solutions offered by the consensus of the group, whether the group be that of mathematicians or slum boys. It is desirable, therefore, to try to describe more exactly the nature of those cultural acts which bear upon responses to intelligence-test questions.

We assume that the following phenomena enter into the system of acts which constitute a pupil's response to a test-problem, and are, therefore, responsible for the status of one pupil, on a test, as compared with that of another pupil:

H = *Hereditary phenomena*, determining certain complex organic structural relationships and functional patterns, probably organized by the

brain and central nervous system. These hereditary factors are probably never the same in a child as in either of his parents, because the number of possible different combinations of the parents' genes is more than 1,000,000. *There is no evidence that such hereditary factors are segregated by socio-economic levels.*

C = *Cultural phenomena*, involved in the pupil's degree of experience, in his family or play-group, with that particular social environment which determines both the content and the symbols of the test-problem.

C_1 = *Training phenomena in school and home*, involving more specific, repetitive, and purposeful experiences with cultural situations and symbols which are closely related to the test-problem.

C_2 = *Cultural motivational phenomena*, or "drive"; those rewards and punishments which exist at a level sufficient to impel the pupil to use his full pattern of activities to solve the test-problem.

S = *The phenomena of "speed,"* which are complex functions of (1) the hereditary factors, (2) the physical condition and stamina of the testee at the particular time, (3) his cultural habits of work, (4) his familiarity with the cultural form

and content of the problem, and (5) his previous experience or training with this specific type of problem.

The relative success of two persons in solving a given test-problem, therefore, depends not simply upon their hereditary equipment, but also upon their relative familiarity with the cultural situations and symbols in the problem, their relative degree of training with similar problems, and the relative strength of their motivation. The factor of time may or may not be involved, depending upon whether the test is a "speed" test or not.

The test-maker must try to equalize the cultural elements in the problems. That is, he must seek to equalize the training (or nurture) element required by the test, because he cannot equalize the genetic factor. Therefore, in constructing a test, the scientist must use only test-problems which meet four basic conditions:

1. The problems must represent a reliable cross section of the types of mental systems¹³

¹³ We regard mental behavior as the interaction of many systems of mental acts. The Spearman theory considers "intelligence" as composed of one general (or *G*) "ability," and of several specific "abilities." We raise the question whether the testee will have a fair chance, however, to show how much of *G* he possesses unless he has had equal access, with all other

which normal children of all socio-economic levels exhibit in real life.

2. The problems must refer to experiences which the sociologist observes to be about equally as common in the life of one socio-economic group as in that of any other such group.

3. The problems must be expressed in symbols, in words or pictures, which the test-maker has found, through his interviews with children, to be about equally familiar to, and to have common meaning for, all socio-economic groups.

4. The problems must be such as to arouse approximately equal interest, attention, and desire

testees, to the situations and symbols by which he is tested, and unless he is equally as motivated as all other testees.

Thurstone's multifactor theory of "intelligence" supposes that there is a rather small number of independent primary "abilities." The necessity for universal situations, symbols, and motivation would apply to Thurstone's tests of Primary Mental Abilities, also.

Our chief criterion for a measure of general mental behavior is that the problems must represent a wide range of mental systems and mental problems. We do not believe that the present tests meet this criterion. Thurstone "isolated" his primary abilities by analysis of fifty-six "current psychological tests," constructed by many persons, but all limited, we believe, to a few systems of mental behavior, and formulated in academic abstract problems. Thurstone quite frankly makes no claim that his tests cover a wide range of "mental factors" or problems. See L. L. Thurstone and T. G. Thurstone, *Manual, Scoring and Interpretation; The Chicago Tests of Primary Mental Abilities* (Washington, D. C.: American Council on

to achieve their solution, on the part of each socio-economic group of children.

To solve the last three of these requirements — those which seek to equalize the chief cultural influences involved in the solution of mental problems — the test-constructor seems to have one of these choices:

1. He may select problems which do not occur in the lives of any socio-economic cultural group and try to express these problems in symbols intelligible to all such groups.

2. He may try to find problems which are equally common in the lives of children of every

Education, 1941), pp. 6, 34. Also see L. L. Thurstone, *Primary Mental Abilities* (Psychometric Monograph No. L; Chicago: University of Chicago Press, 1938), pp. 10-11. F. L. Goodenough has made the same point: "Thurstone's primary abilities are not presumed to cover the complete range of human talent . . . *They involve only the abstract abilities needed for success in the conventional types of intelligence tests and in the academic pursuits of the classroom*" ("The Measurement of Mental Growth in Childhood," *Manual of Child Psychology*, ed. by L. Carmichael [New York: John Wiley and Sons, Inc., 1946], p. 459, n. 2; my italics).

Very recently, Thurstone himself has stated that his "primary mental factors" may vary in their definition. Some may "be defined in endocrinological effects," other in effects of the central or autonomic nervous systems, "*still others may be defined in terms of experience and schooling*" (L. L. Thurstone, *Multiple-factor Analysis* [Chicago: University of Chicago Press, 1947] pp. 55-57; my italics).

socio-economic cultural group, and he may attempt further to express these problems in symbols which are equally familiar to, and have the same meaning for, all such groups.

3. He may abandon any attempt to find problems equally common to both high and low socio-economic groups. Instead he may seek to discover both (1') those types of problems and symbols which are most familiar to the higher socio-economic cultures, and (2') other types of problems and symbols which are most familiar to the lower socio-economic groups, and to combine them fairly in a test.

In fact, the first approach, that of finding completely unfamiliar problems, is not a possible choice, because such problems (namely, those involving some relationship between esoteric geometrical figures) do not arouse as great interest, or as strong a desire to achieve a solution among low socio-economic groups as among high groups. The reason is clear: such an unrealistic problem can arouse the child's desire to achieve a solution only if the child has been trained to evaluate highly any and all success in tests. No matter how unreal and purposeless the problem may seem, the average child in a high socio-economic

group will work hard to solve it, if his parents, his teacher, or other school officers expect him to try hard. The average slum child, however, will usually react negatively to any school test, and especially to a test whose problems have no relation to his experience. Thus, even if such problems and symbols are equally unfamiliar to all socio-economic groups — and this criterion is seldom met in so-called “culture-free” tests — the cultural motivation of the extreme socio-economic groups to solve such problems will be very unequal.

It follows, therefore, that only one kind of problem may be used to test problem-solving activities, if the children who are to be tested have been reared in different socio-economic strata. The required type of problem is one which is general in all socio-economic strata; that is to say, a type of problem which is part of the basic American culture, which may be learned relatively as often in all socio-economic and cultural groups. A test composed of such problems would be culturally fair, or culturally equalized, for all socio-economic groups. It would not attempt to be “culture-free.” A “culture-free” test-situation, as social anthropologists have long pointed out, cannot be designed, because all human behaviors,

including all responses of children to test-problems, are interconnected with cultural acts.

I have tried to state the general cultural issues involved in any effort to measure the comparative level of problem-solving activities in different individuals. It may clarify our grasp of the issues further if we examine the course actually followed by Binet with respect to eliminating cultural bias.

Alfred Binet excelled all his successors both in the realism of his test-problems and in his desire to control the cultural aspects of these tests. When he had only a few months to live, he finally discovered that a marked cultural bias remained in his own tests. Unable, apparently, to face the "failure" of his tests, Binet ended his life's work by denying a fact which was perfectly clear from his own research: the fact that his selection of problems greatly favored children from the higher socio-economic levels. This whitewashing, with its resultant penalty for three decades of school children, is hard to explain in Binet's case, because he was a highly sophisticated student of the cultural influences upon problem-solving. His experience, therefore, is well worth describing.

With the publication of their first series of tests in 1905, Binet and Dr. Therese Simon stated that their purpose was "to measure the intellectual

capacity of a child who is brought to us in order to know whether he is normal or retarded." "We shall limit ourselves to the *measuring of their general intelligence*. We shall determine [the] intellectual level [of children of "inferior intelligence"], and, in order the better to appreciate this level, we shall compare it with that of normal children of the same age or of an analogous level." By 1908, however, when they published the second form of their tests, Binet and Simon had broadened their purpose to include the "measurement of intelligence" in all children. "We set for ourselves the following program: first, to determine the law of intellectual development of children and to devise a method of measuring their intelligence." ¹⁴

In this same year, the authors emphatically stated their conviction that success in school could not be used as a criterion of intelligence. This was a revolutionary conclusion, running counter to their own past assumptions and practice. It is still revolutionary today; the passages, therefore, deserve quotation:

It seems to us that the scholastic aptitude admits

¹⁴ *The Development of Intelligence in Children*, tr. Elizabeth S. Kite (Baltimore: The Williams and Wilkins Co., 1916), pp. 42, 258-259, 294.

of other things than intelligence; to succeed in his studies, one must have qualities which depend especially on attention, will, and character; for example a certain docility, a regularity of habits, and especially continuity of effort. A child, even if intelligent, will learn little in class if he never listens, if he spends his time playing tricks, in giggling, in playing truant.

Then follows one of the most discerning comments in educational psychology:

This explains to us that our examination of intelligence can not take account of all these qualities, attention, will, regularity, continuity, docility, and courage which play so important a part in school work, and also in after-life; for life is not so much a conflict of intelligence as a combat of characters. And we must expect in fact that the children whom we judge the most intelligent, will not always be those who are the most advanced in their studies. An intelligent pupil may be very lazy. We must also notice that the lack of intelligence of certain subnormal pupils does not account for their great retardation. We recall what we saw when we followed the lesson for many hours in a subnormal class. It was surprising to see how restless they were, always ready to change their places, to laugh, to whisper, to pay no attention to the teacher. With such instability it would require double the intelligence of a normal pupil to profit from their lessons.¹⁵

Binet and Simon then proceed to criticize certain of their own test-problems as depending, for their

¹⁵ *Development of Intelligence in Children*, pp. 254, 256-257.

solution, largely upon home training in study-habits and in specific information.

These problems which depend largely upon cultural training in the home, Binet and Simon point out, include those involving reading and vocabulary. This comment is the most sweeping criticism ever made of subsequent verbal intelligence tests. It rules out, if put into practice, most questions in present verbal intelligence tests:

There is a final exercise which is never passed before the age of its level, and that is the answers to the second series of comprehensive questions, because they are not merely questions of intelligence since being intelligent alone does not suffice to pass them; it is also necessary to know certain words of the vocabulary; there are certain expressions such as "prendre parti" which not being understood checks the most active intelligence. *Now the vocabulary of a language is slowly assimilated; it demands a long experience which cannot be improvised.*¹⁶

Facility in reading, in vocabulary, in choosing synonyms, and in other aspects of academic linguistic practice, Binet believed, resulted largely from home experience, and from other cultural experience. Binet saw this point clearly in 1908, and therefore revised his earlier claim that the

¹⁶ *Development of Intelligence in Children*, p. 258. My italics.

tests measured "mental capacity." In concluding the above criticism, he admitted:

All these diverse verifications permit us to judge intelligently what we measure with our measuring scale of intelligence. We do not measure the intelligence considered separately from a number of concrete circumstances — the intelligence which is needed for understanding, for being attentive, for judging. It is something far more complex that we measure. The result depends: first, on the intelligence pure and simple; second, on extra-scholastic acquisition capable of being gained precociously; third, on scholastic acquisitions made at a fixed date; fourth, on acquisitions relative to language and vocabulary, which are at once scholastic and extra-scholastic, depending partly on the school and partly on the family circumstances.¹⁷

After thus specifying the cultural influences upon test responses, Binet and Simon immediately proceeded, however, to claim that their tests did justice to children of all socio-economic levels. Furthermore, as will be seen soon, they continued to use their tests of facility in academic vocabulary and in definition of words as the prime means of distinguishing "superior intelligence" among older children! This failure runs through all Binet's later works. It is the rather pathetic, contradictory behavior of a man who saw clearly the cultural problem involved in using the same problems

¹⁷ *Development of Intelligence in Children*, pp. 258-259.

to test children of different socio-economic groups; of a man who himself was unable to solve this problem, and who therefore defended, though unconvincingly, his already established tests.

This conflict within his own mind reached its height in 1910 and in 1911, the year of Binet's death. In that year he and Simon published in *L'Année Psychologique* the last revision of their tests, together with their defense of the revisions. At the same time, the authors discussed at length the evidence that the performance of the higher socio-economic groups on these tests was superior to that of the "working class" groups. Throughout this final paper, the authors shift their position constantly.

First, Binet makes it perfectly clear that he had been greatly concerned over the danger that large sections of his test measured chiefly the effects of cultural training rather than of mental capacity. He had eliminated certain tests, he wrote, because their solutions could be greatly facilitated by the training of the child at home or at school.

There are tests which require a knowledge outside the intelligence of the child. To know his age, count his fingers, recite the days of the week indicate he has learned these little facts from his parents or friends; we have thought well to suppress these three tests. There are tests too exclusively scholastic, as that of

reading and retaining a given number of memories of what has been read, or copying a written model, or writing from dictation. We suppress these.¹⁸

Even more radical was his decision to eliminate his one test involving reading: "In our new series of tests, that of reading is eliminated, because it belongs to the degree of instruction."¹⁹ In seeking to avoid problems whose solution could be influenced by either home or school training, Binet went so far as to eliminate questions requiring a child of six years to tell his age, or a child of seven years to copy a sentence, or a child of nine years to "read and retain six facts." Those tests which he eliminated, because they had scholastic and other cultural bias, included:

- Tests of 6 years: Tell the age.
Distinguish evening and morning.
- Tests of 7 years: The fingers of the hand.
Copy a written sentence.
Name four pieces of money.
- Tests of 8 years: Read and remember two facts.
Write from dictation.
- Tests of 9 years: Days of the week.
Read and retain six facts.²⁰

Binet then considered the research of Decroly

¹⁸ *Development of Intelligence in Children*, p. 275.

¹⁹ *Development of Intelligence in Children*, p. 294.

²⁰ *Development of Intelligence in Children*, p. 294.

and Degand, which reported that forty-seven children tested in Brussels, of "a social class in easy circumstances," showed an average advance in test-level of one and one-half years over Binet's "working class" children.²¹ Binet could not face the implications of this fact, when considered in the light of his own views that home and school training influenced the responses to most of his test-problems. First, he himself conducted a better and more conclusive research, in which he had M. Morlé test one group of children of high socio-economic status and another of low socio-economic status. This research also revealed that the children of low socio-economic groups did less well on Binet's tests, and that they did less well in scholastic work.²² At the same time, Binet pointed out that nearly all of the problems in his tests were "correlated" with cultural "aptitudes" which he called "home training," "attention" (motivation), "language," "habit of looking at pictures," and "scholastic exercise."

At this point Binet stopped reasoning. He simply ignored the facts in making a final estimate of his tests. He could not, or would not, follow through to the obvious conclusion that other kinds

²¹ *Development of Intelligence in Children*, pp. 316ff.

²² *Development of Intelligence in Children*, pp. 326-328.

of problems were needed. Although he said that these types of training were more highly developed in the schools and homes of children of high socio-economic status, and although he knew, from his own research, that children of high socio-economic status had a much easier time with his type of tests, he did not face the clear inference that his tests were not a fair basis for comparing the mental capacity of children of differing socio-economic levels. Intellectually honest and self-critical as he had shown himself in his previous work, Binet's failure to draw this inference may be attributed perhaps to his illness. Yet his insight into the crucial issue of the cultural content and form of mental problems was far greater than that of subsequent test-makers.

Before considering an experiment to measure the weight of these cultural influences upon test-responses, we must expand our criticism of the chief form of middle-class bias in these tests. This is the overwhelming importance of language, including both vocabulary and sentence structure, as these are developed in the culture of the higher socio-economic groups. In nearly all general intelligence tests, the authors have depended chiefly upon two types of verbal questions to furnish the most difficult problems in their tests, and to screen

the "mediocre" and "average" pupils from the "superior" pupils. These two types of questions are based upon (1) verbal relationship and complex academic phrasing (such as verbal "analogies" and "opposites," and "syllogisms"); and (2) rare words (used in vocabulary tests and "definitions").

Most test-makers recognize that the linguistic factor is the most important in their tests.²³ They have accepted academic linguistic skill as a fair measure of mental capacity for all socio-economic groups. Even Binet, who explicitly stated that responses to vocabulary questions depended upon the kind of home training and experience a child had had, nevertheless retained problems requiring verbal fluency ("abstract definitions," "rhymes," and so forth) as the principal means of measuring the capacity of older pupils. He retained these problems for the same reasons that later test-

²³ See L. M. Terman, "The Vocabulary Test as a Measure of Intelligence," *Journal of Educational Psychology*, IX, 452-466; Terman and M. A. Merrill, *Measuring Intelligence* (rev. ed.; Boston: Houghton Mifflin Co., 1937); A. S. Otis, *Manual of Directions for Beta Test; Forms A and B* (Yonkers-on-Hudson, New York: World Book Co., 1937, 1939). In the *Manual* Otis states, "If a pupil has grown up with a limited educational opportunity, especially with reference to language, his mental ability is not fairly measured by any test involving language."

makers have placed their chief dependence upon them; that is, (1) they correlate very highly with school achievement; (2) it is much easier for the test-maker to find "difficult" vocabulary problems than it is to find "difficult" problems dealing with other than purely verbal complexities.

All verbal tests depend upon such items to weed out the majority of pupils. (Similarly, nearly all standard picture tests depend upon abstruse geometrical figures to define the highest ability.) Really, abstruse linguistic problems serve chiefly to eliminate from the highest I.Q. levels those pupils who have the poorer training in vocabulary, and so forth, either at home or in school. Yet they are routinely used as the best determinants of high ability. This is the basic flaw in present tests; they have made an arbitrary choice of verbal skill (or skill in seeing the relationship of abstruse geometrical figures) as the most important index of high mental ability. Yet, it is well known that these skills in children, as well as their interest in practicing them, are consciously promoted by most families in high socio-economic groups, but are not emphasized by the those in the low socio-economic groups.

Many research critics of the present tests have called attention to this linguistic bias in intelli-

gence tests.²⁴ Dr. David R. Stone, who worked with us, made up a multiple-choice vocabulary test consisting of words frequently used in the items or in the directions of common group tests of intelligence.²⁵ Using this vocabulary test with the same group of children on which results were reported earlier in this paper, Stone found reliable socio-economic differentials for 70 per cent of the words in his test. He found that the average nine- or ten-year-old of the highest socio-economic group did as well as the average thirteen- or fourteen-year-old of the lowest socio-economic group. This finding means that the children of the highest socio-economic group, attending the later grades of the elementary school, are about four years advanced beyond those of the lowest socio-economic group with respect to their knowledge of

²⁴ See M. Bruce, "Factors Affecting Intelligence Test Performance," *Archives of Psychology*, No. 252, 1940; M. Riggs, "Some Further Data on the Language Handicap," *Journal of Educational Psychology*, XIX, 252-256; M. A. Mellone, "Reading Ability and I.Q.," *British Journal of Educational Psychology*, XXII, 128-135; D. L. Mackaye, "Interrelations of Speech and Intelligence," *American Journal of Sociology*, XV, 363-367; D. McCarthy, "Language Development in Children," *Manual of Child Psychology*, pp. 557-566.

²⁵ See his "Certain Verbal Factors in the Intelligence-Test Performance of High and Low Social Status Groups (unpublished Ph.D. dissertation, University of Chicago, 1947).

the words which are essential to good scores on standard verbal intelligence tests.

Yet test-makers and academic people persist in the belief that verbal facility is the highest expression of mental capacity. Their own careers and training have emphasized linguistic skill above all other forms of learning. Since they make and administer the tests, they build into the tests, as most important, that particular element or factor which is most important in their own academic culture.

But facility in a particular language — in this case, the rarer forms of “standard English” — offers no sound basis for measuring mental capacity. Any language is a highly formalized system of cultural behavior. It must be learned by long experience in that cultural group which possesses the language. The lower socio-economic groups have a different language-culture than the higher groups. They speak various “nonstandard” dialects. Therefore, their mental capacity cannot be tested by asking them to define such words as “ambiguous” or “illumination,” or to understand the meaning of such phrases as “is to” in the statements: “Loud *is to* sound as bright *is to* what?” or “Zoo *is to* animals as aquarium *is to* what?” or “Complex *is to* simple as hard *is to* what?” These

questions test only one's facility with, and training in, middle-class linguistic culture.

It is very doubtful, in fact, that the refinements, as we consider them, of middle-class English indicate any higher degree of mental capacity than the complexities of lower-class dialects or of primitive languages. Comparative studies of civilized and primitive languages have convinced linguists that differences between language-cultures are not related to differences in the mental development of the groups speaking these languages.

The late Edward Sapir is generally regarded by students of language as the most able comparative linguist of our times. Sapir denied explicitly that our so-called "advanced" European languages really showed any greater complexity, or intellectual ability, than the languages of many primitive peoples. His scientific judgment is a necessary antidote to the almost universal academic view that facility with standard English is a mark of superior intelligence. Many American Indian languages are equally complex!

The following words of Sapir's might well be studied by every teacher, professor, and test-maker:

The lowliest South African Bushman speaks in the forms of a rich symbolic system that is in essence per-

fectly comparable to the speech of the cultivated Frenchman. . . The sort of linguistic development that parallels the historic growth of culture and which, in its later stages, we associate with literature is, at best, but a superficial thing. The fundamental groundwork of language — the development of a clear-cut phonetic system, the specific associations of speech elements with concepts, *and the delicate provision for the formal expression of all manner of relations* — all this meets us rigidly perfected and systematized in every language known to us. *Many primitive languages have a formal richness, a latent luxuriance of expression, that eclipses anything known to the languages of modern civilization.*²⁶

In view of the last fact, no teacher or test-maker should regard skill in standard English as proof in itself of a very high intelligence. Some primitive people have to learn more complex linguistic skills.

Both simple and complex types of language, of an indefinite number of varieties, may be found spoken at any desired level of cultural advance. When it comes to linguistic form, Plato walks with the Macedonian swineherd, Confucius with the headhunting savage of Assam.²⁷

The same view is taken by leading anthropologists generally. An even stronger position is taken in a recent work by a comparative linguist:

²⁶ *Language* (New York: Harcourt, Brace and Co., 1939), p. 22. My italics.

²⁷ *Language*, p. 234.

We have to conclude that inflexion, in particular, and linguistic structure in general have nothing to do with the advancement of a people. All languages in the world, today and within the historical period, have, and had, structures sufficiently flexible to express every category of thought which the human being can conceive.²⁸

It is probably true, therefore, that in making the linguistic factor the chief basis for judging mental capacity, the test-makers have chosen one of the poorest indicators of basic differences in problem-solving capacity. Most laymen probably have had this feeling when looking at the abstruse words and linguistic exercises in these tests.

In seeking to measure the relative importance of various cultural influences, we have conducted a large-scale experiment with pupils of ages nine to ten in the highest and lowest socio-economic groups.²⁹ The cultural phenomena isolated were: (1) cultural symbols (words or pictures) in test

²⁸ M. Swadesh, *La Nueva Filologia*, vol. IV, Coleccion "Siglo XX" (Biblioteca del Maestro Mexico: El Nacional, 1941), p. 38. (I am indebted to Dr. Harold B. Dunkel for his translation of the passage quoted above.)

²⁹ Ernest A. Haggard was chiefly responsible for designing this experiment. Allison Davis and Robert J. Havighurst revised the design, and directed the experiment. Davis, Haggard, and Edith Lind constructed the "culturally fair" items. Virgil E. Herrick and Edith Lind planned the practice sessions. Haggard carried out the statistical analysis, under the supervision of Ralph W. Tyler.

problems; (2) school training of pupils in related problems; (3) specific rewards for pupils; (4) oral versus written presentation of problem to pupils. This central experiment will be described in a later article, and more fully in a monograph.

Here we may report, however, that we experimented with 516 pupils, nine to ten years old, equally divided between the highest and lowest socio-economic groups. Using groups (cells) matched for chronological age, I.Q., and socio-economic index, we tested pupils with standard-test items, and also with similar items which we had made fairer culturally. This test occurred on a Monday. On the next three days, we gave to half of each test group a total of two hours of instruction and practice with problems similar to, but not identical with, those on the tests. The other half of the testees received no practice.

The "practice" group had been further divided into half, so that one half received the promise of a movie ticket if they worked hard in the practice sessions, while the other half of the practice group were told nothing of a reward. Finally, on the fifth day, half of each group were told that they would receive a movie ticket if they did well on the retesting that day, while the other half of each cell were told nothing of a reward. Half of all the

cells then were retested with the standard tests, and the other half with the "culturally fair" items. On the retesting, two of the cells were given the "culturally fair" test orally, so that reading by the pupil was not necessary.

Until a detailed report of the analysis is published, it is important to notice for our purposes here that the lowest socio-economic group improved at the same rate, as a result of all factors combined, as did the highest socio-economic group. Motivation during practice decreased the attainment of the highest socio-economic group significantly on the standard tests. Motivation during the test helped the lowest socio-economic group significantly more than the highest.

Practice, when considered alone, did not help the lowest socio-economic group significantly on the standard-test items, but did help the highest socio-economic group significantly on the standard items. Both socio-economic groups performed better on the "culturally fair" test than on the standard tests, but there was a strong trend for the lowest socio-economic group to gain more than the highest socio-economic group on this "culturally fair" test. (The items were verbal, paper-and-pencil items.) Finally, it is important to notice that on the "culturally fair" tests, the

lowest socio-economic group performed better on the oral than on the regular (reading) presentation, whereas the highest socio-economic group did slightly better on the regular than on the oral presentation.

STEREOTYPING OF THE SCHOOL CULTURE

The present intelligence tests offer one of many instances, to be found in the public schools, of the arbitrary restriction of the goals of the pupils' learning to a very narrow range of activities. The people who devise and teach the curricula of the public schools are nearly all middle class. More than 95 per cent of the teachers in the communities in New England, the deep South, and the Midwest to which I have referred previously in this paper, are middle class. Like any particular culture, that of the middle class emphasizes a rather narrow range of mental abilities and problems.

The culture of the school, therefore, selects only mental problems which are highly valued in middle-class life, and which appear to provide adaptive training for those who wish to learn the skills and values of the adult culture. If we wish

to train a wide range of mental activities in the pupil, however, we need to ask ourselves at least the following questions:

1. Does the public school emphasize a range of mental problems and skills which is too narrow to develop most of the abilities necessary for attainment even in middle-class culture itself?

2. Does the public school select a range of mental problems and skills which is so narrow that the school fails to develop much of the mental potential of lower-class pupils?

These questions are posed here as the most important of the hypotheses for intensive research which have been suggested to us by our findings on socialization and on mental problem-solving. In the remainder of this paper, these problems will be examined briefly, in an exploratory way.

From his middle-class culture, learned from his parents, teachers, and friends, both the teacher and the professor of education have learned to regard certain mental interests and skills, certain moral values, as the "best," or "most cultured," or "most intelligent." Granted that, for this society, the basic *moral* values of middle-class people may be the most adaptive for survival, it does not follow that present-day middle-class

academic skills and goals are most effective in developing the intellectual, imaginative, and problem-solving activities of human beings.

The school culture itself is a narrow selection of a few highly traditional activities and skills, arbitrarily taken from middle-class culture as a broader whole. To cite a case, the skills most highly valued by middle-class people are verbal comprehension and fluency. It is probable, however, that these skills do not require very high-level mental ability for those who live in either upper-middle-class or upper-class culture. Verbal tasks probably lie somewhere about at the midpoint of the difficulty-range of intellectual skills. Many types of invention, of creativeness, of analytical organization, and indeed of symbolic manipulation are certainly more rare and more valuable to mankind than is skill in standard English, or standard French, or standard German. Moreover, as pointed out previously in this paper, the intelligence necessary to acquire skill in the English language ranks only moderately high as compared with the complex mental activity required to learn any one of several American Indian "primitive" languages!

Just as we have been taught by our narrow academic culture both to stereotype our intelli-

gence-test problems, and to accord the highest educational value to linguistic training, so also we have been led by scholastic culture to overrate reading as a means of developing mental processes. Reading is made the basis of the child's mental training in the first school years. Upon this basis he is usually segregated into one of the classroom's or the school's homogeneous "ability-groups." Through his early classroom experiences in learning to read, and through the accompanying prestige or stigma he meets in the classroom, the child's basic concept of his mental adequacy is learned.

Does reading deserve this high place in the first three or four years of schooling? My observations and interviews in nearly five hundred classrooms during the last four years lead me to doubt that reading helps the young child learn to solve the more basic types of mental problems. In our schools, reading consists chiefly of learning to recognize written symbols, to pronounce them, and to paraphrase them. These trainings are carried on in the classroom day in and day out, year after year, and receive greatest emphasis from the teacher. Yet it seems clear to me that they stimulate only a very narrow range of thought-processes.

The hypotheses to be tested by research upon reading include first those having to do with concept-formation. Does his reading in school help the young child to learn most of his words and most of his concepts? Does not the school practice in reading concern itself chiefly with the learning of symbols and the ordering of symbols? If this is true, does this undue emphasis upon symbols result from the fact that other types of experience in the classroom are too limited to develop most areas of concept-formation and reasoning?

The second group of hypotheses concerns the experiences symbolized by the written signs which the child learns to read in school. We have only to look at the books used in the first three or four grades to recognize that the experiences symbolized are far more simple than those which the child has already met in his daily life. In the first grade, he learns to read "I see the boy" long after he has learned to speak and to think in complex-compound sentences, or to outwit his father or mother in family arguments, or to solve some problems in intelligence tests which his parents cannot solve! The same child who has to spend months learning to recognize those types of verbal symbols which give children most trouble — the symbols for abstract experiences, pronouns, and

verbal auxiliaries — has already been speaking and understanding these same words in conversation for years!

Now it is well and necessary for a six-year-old to learn to read the written symbols, "I see a cat" or "Mary went to Grandmother's house." He must learn to recognize the written symbols sooner or later. But scientists and teachers must not therefore conclude that this task should be the prime endeavor of his first years in school. He is in school primarily to learn how to think, to develop his reason, his insight, his invention, his imagination.

The academic function of the school is to help the child learn how to solve a wide range of mental problems. Of how much value is reading in helping the young child learn to solve mental problems? In the simple stories which he reads and paraphrases, all the problems except those of vocabulary, word recognition, and syntax are solved for him by the writer. He learns a new and important concept only once in a blue moon from his primer; even then, he learns it chiefly by memory and by simple association. In other words, there is little chance for the child to learn to recognize, to define, and to analyze problems in any exploratory or empirical way in reading; in

his primer, he simply learns to decode someone's thoughts about a cat, or a grandmother, or a circus, or a trip to the country.

One must recognize, therefore, that the experiences symbolized in the child's books usually do not interest him. The stories seem foolish to lower-class children because the experiences appear unreal, the words strange. To the middle-class child, the drive of seeking his parents' and teacher's approval is usually strong enough to keep him trying, but not strong enough to make him *like* reading. Since the stories are written chiefly to teach certain words, and are organized, therefore, around the repetition of these words, they make little sense as a view of reality to the middle-class child, either.

Thus reading fails to give pupils any great skill in solving problems (1) because it limits its problems largely to purely verbal ones, and (2) because its problems are felt by the pupil to have little importance in his life outside the school.

The basic criticism of the school's great emphasis upon reading, therefore, is this: Reading teaches too little skill in problem-solving (either of a rational, empirical, or inventive kind) to justify the first place it holds in the curriculum. Learning the skill of decoding written communi-

cation is important, but not so important for the development of mental ability as the pupil's analysis of his own experience, and his drawing of correct inferences from this analysis. How often does one observe curriculum activities which guide this kind of learning?

The likelihood that the school will be able to discover units of discussion and study which will develop a wider range of mental problem-solving activities in pupils is greatly reduced, furthermore, by the practice of so-called homogeneous grouping. Nearly all such segregation of pupils into "fast" and "slow" groups is based upon their reading scores or intelligence-test scores. These scores in turn, as well as ratings by teachers, are strongly related to the social-class culture of the pupil. The result of this circular process of evaluating mental ability and achievement is that homogeneous grouping strengthens the social-class discrimination within the school, and maintains the narrow academic stereotyping of the curriculum.

Homogeneous grouping really sets up different social and cultural groups within the school, and thus establishes different learning environments. Most middle-class pupils are placed in the "faster" groups, while most lower-class pupils are placed

in the "slower" groups. Because selection is based upon reading scores and/or intelligence-test scores, many abilities and problem-solving activities are not considered. The result is that most of the middle-class group, and most of the lower-class group lose something. Segregated from each other, unable therefore either to stimulate or to imitate each other, each group fails to learn well those problem-solving activities and insights in which the other group excels. Both groups lose more than they gain.

This field needs sound experimental research, in which the following safeguards must be taken: (1) The factor of homogeneous or heterogeneous grouping as an aid to learning must be measured apart from either the factor of the techniques of the teacher or the factor of the personality of the teacher. Thus, teachers in each experimental group must use the same method, have the same type of personality, and be equally driven to succeed. (2) Under no circumstances should teachers' or administrators' ratings of the relative "success" of these two methods of grouping be accepted as of any use in measuring the results. Most teachers prefer homogeneous grouping, because by rotation of classes each teacher receives a chance to teach a "fast" and "successful" group,

and thus gets both a sense of achievement and the approval of the principal. Likewise, the middle-class work-habits of the "fast" group tend to prejudice the teachers in their favor. (3) The mental problems used in the experiment should include some from daily experiences common to all socioeconomic groups; the problems should not be limited to the routine scholastic exercises used on achievement tests. (4) The results should be measured objectively, and orally, so that reading will not be a factor in every test of attainment taken by each experimental group, but only in the specific test of reading.

All our findings point to the same conclusion: The greatest need of education is for intensive research to discover the best curricula for developing children's basic mental activities; such activities, that is, as the analysis and organization of observed experiences, the drawing of inferences, the development of inventiveness. The present curricula are stereotyped and arbitrary selections from a narrow area of middle-class culture. Academic culture is one of the most conservative and ritualized aspects of human culture. Its formalization, its lack of functional connection with the daily problems of life, has given a bloodless, fossilized character to the classroom which all of us

recognize. For over a generation, no basically new types of mental problems have been added to intelligence tests. For untold generations, we have been unable to think of anything to put into the curriculum which will be more helpful in guiding the basic mental development of children than vocabulary-building, reading, spelling, and routine arithmetical memorizing. Even as we read this, many of us will think it absurd to suppose that reading and arithmetic are not the best activities for teaching children to solve mental problems.

Let us ask ourselves this simple question, however. What proportion of the *basic mental problems* met by children (and by adults for that matter) in their daily life can be solved by having a large standard vocabulary, or skill in reading, or skill in arithmetical processes? Do these trainings teach a human being correct habits of making inferences or of gaining insight about most of the difficult mental problems which he faces? Does one observe in more than one out of twenty public-school classrooms any activities which help children to learn how to reason, to analyze, to invent; or does one observe instead activities of memorizing, of learning symbols, of reading or listening to predigested solutions by other people, and of

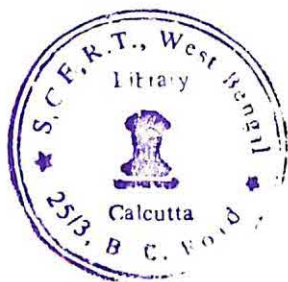
paraphrasing ("telling the meaning") of other people's words? Most observers would find the latter.

Indeed, the most important inference to be made from the studies briefly reported in this paper, dealing with the socialization and mental activities of children, is that most of our efforts to revise the curricula of the public schools have been superficial. To make the schools a place where children may learn to analyze facts, to reason from them, to develop insight and inventiveness, we need far more than a systematic method for teaching words or numbers. Those attempts, moreover, which start with sweeping generalizations about reality, or community experiences, and other such goals all start at the wrong end of the learning sequence.

We need to start with simple situations, drawn from the daily life of the pupil. As yet, we do not know what these situations are. We do not know how to use them to guide the drawing of inferences, the processes of reasoning. All we know is that they must be very explicit and short sequences of acts, so that the learner may actually infer the relationship between specific events. The situations must also be chosen from the common life of all the pupils, so that the problems will

motivate all social classes. Finally, these curriculum-experiences must be intensive, not vague and general; they must be at the molecular level of analysis, so that the child may carry a problem through all the detailed steps to the solution. Yet they will be simple and realistic problems.

Those who revise the curriculum in this intensive way will change the whole course of human education in our society.



Form No. 3.

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